An Ideal Integrating Bolometer

Canceled Technology Project (2012 - 2017)

Project Introduction

The purpose of the Goddard Space Flight Center's Internal Research and Development (IRAD) program is to support new technology development and to address scientific challenges. Each year, Principal Investigators (PIs) submit IRAD proposals and compete for funding for their development projects. Goddard's IRAD program supports eight Lines of Business: Astrophysics; Communications and Navigation; Cross-Cutting Technology and Capabilities; Earth Science; Heliophysics; Planetary Science; Science Small Satellites Technology; and Suborbital Platforms and Range Services.

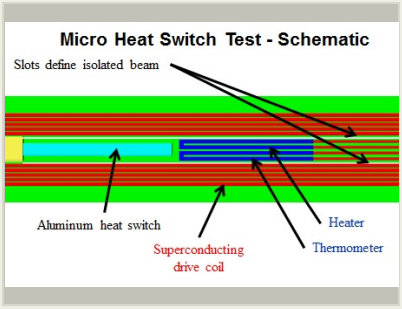
Task progress is evaluated twice a year at the Mid-term IRAD review and the end of the year. When the funding period has ended, the PIs compete again for IRAD funding or seek new sources of development and research funding or agree to external partnerships and collaborations. In some cases, when the development work has reached the appropriate Technology Readiness Level (TRL) level, the product is integrated into an actual NASA mission or used to support other government agencies. The technology may also be licensed out to the industry.

The completion of a project does not necessarily indicate that the development work has stopped. The work could potentially continue in the future as a follow-on IRAD; or used in collaboration or partnership with Academia, Industry and other Government Agencies.

If you are interested in partnering with NASA, see the TechPort Partnerships documentation available on the TechPort Help tab.
http://techport.nasa.gov/help

Anticipated Benefits

A superconducting heat switch will provide variable conductance for detector read-out allowing for greatly increased sensitivity.



Micro heat switch test-schematic

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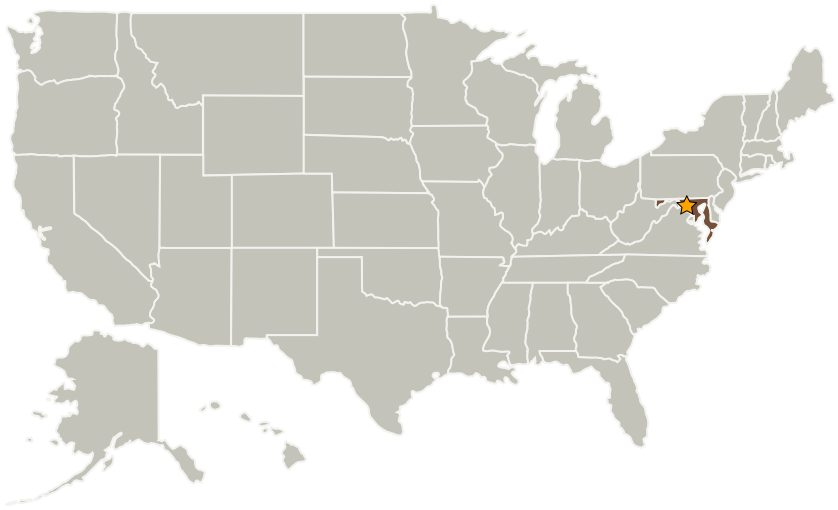
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland

Primary U.S. Work Locations
Maryland

Project Transitions

October 2012: Project Start

September 2017: Project canceled because budget cuts, funding reallocation, or insufficient funding
Rationale: Project canceled because budget cuts, funding reallocation, or insuffi cient funding

Organizational Responsibility

Responsible Mission Directorate:
Mission Support Directorate (MSD)

Lead Center / Facility:
Goddard Space Flight Center (GSFC)

Responsible Program:
Center Independent Research & Development: GSFC IRAD

Project Management

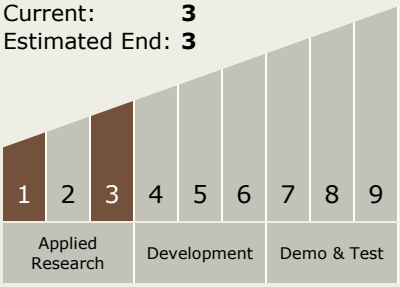
Program Manager:
Peter M Hughes

Project Manager:
Terry Doiron

Principal Investigator:
Edgar R Canavan

Technology Maturity (TRL)

Start: **1**
Current: **3**
Estimated End: **3**



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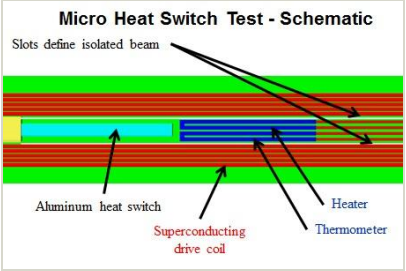
September 2017: Closed out

Closeout Summary: The purpose of the Goddard Space Flight Center's Internal Research and Development (IRAD) program is to support new technology development and to address scientific challenges. Each year, Principal Investigators (PIs) submit IRAD proposals and compete for funding for their development projects. Goddard's IRAD program supports eight Lines of Business: Astrophysics; Communications and Navigation; Cross Cutting Technology and Capabilities; Earth Science; Heliophysics; Planetary Science; Science Small Satellites Technology; and Suborbital Platforms and Range Services.Task progress is evaluated twice a year at the Mid-term IRAD review and the end of the year. When the funding period has ended, the PIs compete again for IRAD funding or seek new sources of development and research funding or agree to external partnerships and collaborations. In some cases, when the development work has reached the appropriate Technology Readiness Level (TRL) level, the product is integrated into an actual NASA mission or used to support other government agencies. The technology may also be licensed out to the industry.The completition of a project does not necessary indicate that the development work has stopped. The work could potentially continue in the future as a follow-on IRAD; or used in collaboration or partnership with Academia, Industry and other Government Agencies.If you are interested in partnering with NASA, see the TechPort Partnerships documentation available on the TechPort Help tab. http://techport.nasa.gov/help

Images



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Micro heat switch test-schematic
(https://techport.nasa.gov/image/2596)

Stories

Untitled Conference Paper 1
(https://techport.nasa.gov/file/36703)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.1 Remote Sensing Instruments/Sensors
    - TX08.1.1 Detectors and Focal Planes

Target Destinations

Outside the Solar System, Foundational Knowledge

Supported Mission Type

Projected Mission (Pull)

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Links

Demonstration of a Pixel-Scale Superconducting Heat Switch for an Ideal Integrating Bolometer *(http://ieeexplore.ieee.org/document/7843606/)*

Project Website:

http://sciences.gsfc.nasa.gov/sed/